

EDITORS

ERRY YULIAN TRIBLAS ADESTA

MOHAMMAD YEAKUB ALI

AKM NURUL AMIN

DESIGN FOR MANUFACTURE

Towards Improved Manufacturability



IIUM Press

DESIGN FOR MANUFACTURE

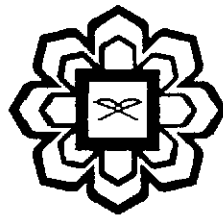
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CONTENTS

Preface

PART I: DESIGN

Chapter 1 - Design of a Simple and Affordable Electric Bicycle 04

Tasnim Firdaus Ariff¹, Goey Ewing² and Kam Yee Wah³
1 Faculty of Engineering – International Islamic University Malaysia
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Chapter 2 - Design of Bicycle Helmet Using FEA 10

Tasnim Firdaus Ariff¹ and Lau Ken Tick²
1 Faculty of Engineering – International Islamic University Malaysia
2 School of Technology, Tunku Abdul Rahman College
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Chapter 3 - Mould Design for Handphone Casing Using Moldflow 18

Tasnim Firdaus Ariff¹ and Law Siah Yong²
1 Faculty of Engineering – International Islamic University Malaysia
2 School of Technology, Tunku Abdul Rahman College
✉ : tasnim@iium.edu.my

Chapter 4 - Improvement of Typical Hip-Joint Design for Gripping and Fixing 26

Siti Norbadiyah Binti Mohamad Badari¹ and Erry Adesta²
1, 2. Faculty of Engineering – International Islamic University Malaysia
✉ : eadesta@iium.edu.my

Chapter 5 - A Surgical Training Model Manufacture Using Fused Deposition Modeling 44

Hasanudin Hafis Mohamad Ali, Md. Amir Hamzah Md. Shukri, WAY Yusoff
Faculty of Engineering – International Islamic University Malaysia
✉ : hasan.ma86@gmail.com; mdamirhamzah87@gmail.com

Chapter 6 - Reverse Engineering for Rapid Prototyping of Automotive Components	50
WAY Yusoff ¹ , Muhammad Ridhuan Kamarudin ² and Noor Hiana Mohd Salimi ³	
1, 2, 3 Faculty of Engineering – International Islamic University Malaysia	
✉ : yusmawiza@iium.edu.my; wan_ching05@yahoo.com.my; nuriliana@yahoo.com	

Chapter 7 - Design and Fabrication of Industrial Welding Robotic Arm	58
Syed Idros Syed Abdullah ¹ , Mohamad Syatbi Mahamad Puzi ² , and WAY Yusoff ³	
1,2,3. Faculty of Engineering – International Islamic University Malaysia	
✉ : yusmawiza@iium.edu.my	

PART II: QUALITY

Chapter 8 - Application of Statistical Quality Control for Quality Improvement	66
Tasnim Firdaus Ariff ¹ and Yap Yee Seng ²	
1 Faculty of Engineering – International Islamic University Malaysia	
2 School of Technology, Tunku Abdul Rahman College	
✉ : tasnim@iium.edu.my	

Chapter 9 - The Development of Cost Estimation for Quality Assurance System in Die-Casting Processes	72
Nur Hanisah A Hamzah ¹ Nurhafizah Azmi ² and Erry Yulian Tribblas Adesta ³	
1, 2, 3 Faculty of Engineering, International Islamic University Malaysia	
✉ : eadesta@iium.edu.my	

Chapter 10 - Study the Adherence of the Values in The ISO 9001:2000 Certified Companies in Malaysia	84
Dr. Mohd Radzi Bin Haji Che Daud ¹ and Rusdi Bin Mat Song ²	
1, 2. Faculty of Engineering – International Islamic University Malaysia	

Chapter 11 - Cost Comparison Analysis between Strip to Coil for Support Brake Pedal at Suria Component (M) Sdn. Bhd	92
Dr. Mohd Radzi Bin Haji Che Daud ¹ , Shamin Asyrani Bt Alies ² , Norhayati Bt Saleh ³	
1,2,3. Faculty of Engineering – International Islamic University Malaysia	

Chapter 12 - Performance Measurement of SMEs Manufacturing Sector in Malaysia	98
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WAY Yusoff¹, Muhammad Fauzan Md Noraini² and Mohd Norazrul Ismail³
1, 2, 3 Faculty of Engineering - International Islamic University Malaysia
✉ : yusmawiza@iium.edu.my

Chapter 13 - The Introduction of Fit Manufacturing as a Performance Measuring Approach towards Sustainability of Selected Manufacturing Companies in Malaysia 105

WAY Yusoff¹, Aziatul Ashikin Mohd² and Siti Maznah Abdul Rahim³
1, 2, 3 Faculty of Engineering - International Islamic University Malaysia
✉ : yusmawiza@iium.edu.my

Chapter 14 - The Study of the Implementation of OHSAS: 18001 at Kulliyah of Engineering 113

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Chapter 15 - Implementation of FMECA on Fixed Assembly Cell (FAC) 121

WAY Yusoff¹ and Paul Roberts²
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Chapter 16 - Implementation of FMECA on Computer Integrated Manufacturing (CIM) 129

WAY Yusoff¹ and Azmil Soleh²
1,2 Faculty of Engineering – International Islamic University Malaysia
✉ : yusmawiza@iium.edu.my

PART III: MATERIALS

Chapter 17 - The Effect of Stucco System in Ceramic Shell Investment Casting 139

Siti Norbahiyah Binti Mohamad Badari¹ and Erry Adesta²
1, 2. Faculty of Engineering – International Islamic University Malaysia
✉ : eadesta@iium.edu.my

**Chapter 18 - Casting Investigation of Heat Treated Biocompatible Materials
for Total Hip Bone Replacement 151**

Siti Norbahiyah Binti Mohamad Badari¹ and Erry Adesta²
1, 2. Faculty of Engineering – International Islamic University Malaysia
✉ : eadesta@iium.edu.my

**Chapter 19 - Pultrusion of Pineapple Leaf Fibre (PALF)-reinforced Vinyl Ester
Composites: Water Absorption Property 162**

Mohamed Abd. Rahman, M. Kamarul Helmi M. Nawawi
Faculty of Engineering – International Islamic University Malaysia
✉ : mrahman@iium.edu.my

**Chapter 20 - Effects of Austempering Treatment on Mechanical Properties of
Ductile Iron 170**

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Chapter 21 - Microwave Sintering of Metallic Materials 179

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Chapter 22 - Microwave Sintering of Ceramic Materials 185

Tasnim Firdaus Ariff
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✉ : tasnim@iium.edu.my

PART IV: MODELLING

**Chapter 23 - Numerical Analysis to Characterize Triaxiality Value of Adhesive Joint
due to Particular Load Configuration. Part 1: Butt Joint 194**

Irfan Hilmy
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Chapter 24 - Numerical Analysis to Characterize Triaxiality Value of Adhesive Joint due to particular Load Configuration. Part 2: Cleavage and Scarf Joint 202

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✉ : ihilmy@iium.edu.my

Chapter 25 - Metabolic Energy of Manual Lifting in Manufacturing Industry 213

Mohammad Iqbal¹
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PART V: MANAGEMENT

Chapter 26 - Value Stream Mapping: an Important Footstep for Value Analysis and Value Engineering 223

A. N. Mustafizul Karim and Nurul Husna Binti Azon
Faculty of Engineering, International Islamic University Malaysia
Email: mustafizul@iium.edu.my

Chapter 27 - The Project Management Challenges in Technology Innovation 231

Mahmood Hameed Mahmood¹ and Erry Yulian Triblas Adesta²
1, 2. Faculty of Engineering – International Islamic University Malaysia
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Chapter 28 - Critical Chain in Project Management 239

Erry Yulian Triblas Adesta¹, Asfana Banu Mohamad Asharaf², Nur Atiqah Abdul Rahman Azmil³
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✉ : eadesta@iium.edu.my

PART VI: MACHINING

Chapter 29 - Engineering Project Management in Automotive Industry 247

Mohamed Konneh¹, and Abdul Halim
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Chapter 30 - Surface Study when Finish Grinding Silicon using Resin Bonded Diamond Cup Wheel..... 257

Mohamed Konneh¹, and Muhammad Mukhtar
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Chapter 31 – Surface Roughness Studies in Die-sink EDM of Tungsten Carbide using Copper Tungsten Electrode 264

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Chapter 32 – Study of the Effect of different Electrodes on Material Removal Rate, Electrode Wear Rate and Surface Roughness in the EDM of S-STAR 272

Mohamed Konneh¹, Nur Jannah Shad and Noor Fazlin Saharudin
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Chapter 33 – Kerf in Micro Wire Electro Discharge Machining 279

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Chapter 34 - The Effect of Deep Cryogenic Treatment on the Properties of AISI D2 Tool Steel 286

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Chapter 35 - Effect of Welding Process on Formability of Tailor Welded Blanks 294

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Chapter 30 Surface Roughness Studies in Die-sink EDM of Tungsten Carbide using Copper Tungsten Electrode 257

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Chapter 31 - Study of the Effect of different Electrodes on Material Removal Rate, Electrode Wear Rate and Surface Roughness in the EDM of S-STAR..... 264

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Chapter 33 - Engineering Project Management in Automotive Industry 279

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Implementation of FMECA on Computer Integrated Manufacturing (CIM)

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1. Introduction

Failure Mode and Effect Analysis (FMEA) is one of the most commonly used reliability and system safety analysis techniques which is used to identify possible failure modes, their causes, and the effects of this failure. Proper identification of failures by applying FMEA may lead to solutions that increase the overall reliability, improve quality and safety of a product. Initially, the FMEA is performed while in the design stage, but it also may be used throughout the life cycle of a product to identify possible failures as the system ages. As a FMEA technique develop, assessment of critical is added into FMEA which becomes a Failure Mode, Effects, and Critical Analysis, or FMECA. The C in FMECA indicates that the criticality (or severity) of the various failure effects are considered and ranked. So it can be say that FMECA is essentially an FMEA, with an added critical analysis.

2. Computer integrated manufacturing (CIM) system

Computer-integrated manufacturing (CIM) is a *method of manufacturing in which the entire production process is controlled by computer*. Typically, it relies on closed-loop control processes, based on real-time input from sensors. It is also known as flexible design and manufacturing. Normally CIM is a three-stage process, beginning at graphics terminals where humans and computers collaborate together to design the new product. In the second stage, other computers plan every step of production down to the smallest detail and finally the actual plans are carried out by robots and machine tools on the factory floor.